

(a) radiation scanning the three-dimensional volume to determine a property of each of a plurality of voxels representing the three-dimensional volume;

(b) identifying voxels having similar values of said property to identify a contiguous group of voxels having said similar values using a contiguity evaluation process wherein, for a given voxel, voxels in the same plane as the given voxel, and in planes above and below the given voxel, are compared to said given voxel for contiguity; and

(c) identifying said contiguous group of voxels as potentially containing said explosive if a characteristic of said contiguous group has a predetermined value.

4/ 25. A method to ascertain the presence of a delamination in a composite material in a three-dimensional volume represented by a plurality of voxels, wherein the delamination in the composite material is smaller in at least one dimension than a linear dimension of the voxels, the method comprising the steps of:

(a) radiation scanning the three-dimensional volume to determine a property of each of a plurality of voxels representing the three-dimensional volume;

(b) identifying voxels having similar values of said property to identify a contiguous group of voxels having said similar values using a contiguity evaluation process wherein, for a given voxel, voxels in the same plane as the given voxel, and in planes above and below the given voxel, are compared to said given voxel for contiguity; and

(c) identifying said contiguous group of voxels as potentially containing said delamination in the composite material if a characteristic of said contiguous group has a predetermined value.

5/ 26. A method to ascertain the presence of an object in a three-dimensional volume represented by a plurality of voxels,

wherein the object is smaller in at least one dimension than a linear dimension of the voxels, the method comprising the steps of:

(a) radiation scanning the three-dimensional volume to determine a property of each of a plurality of voxels representing the three-dimensional volume;

C. (b) identifying voxels having similar values of said property to identify a contiguous group of voxels having said similar values using a contiguity evaluation process wherein, for a given voxel, voxels in the same plane as the given voxel, and in planes above and below the given voxel, are compared to said given voxel for contiguity; and

(c) identifying said contiguous group of voxels as potentially containing said object if a characteristic of said contiguous group has a predetermined value, wherein said three-dimensional volume includes luggage contents.

6. An apparatus to ascertain the presence of an explosive in a three-dimensional volume represented by a plurality of voxels, wherein the explosive is smaller in at least one dimension than a linear dimension of the voxels, the apparatus comprising:

(a) a scanner to scan the three-dimensional volume; and

(b) a processor which includes

(1) a contiguity identification module to determine a property of each of a plurality of voxels representing the three-dimensional volume and to identify voxels having similar values of said property to identify a contiguous group of voxels having said similar values using a contiguity evaluation process wherein, for a given voxel, voxels in the same plane as the given voxel, and in planes above and below the given voxel, are compared to said given voxel for contiguity; and

(2) an explosive identification module to identify said contiguous group of voxels as potentially containing said

explosive if a characteristic of said contiguous group has a predetermined value.

28. An apparatus to ascertain the presence of a delamination in a composite material in a three-dimensional volume represented by a plurality of voxels, wherein the delamination in the composite material is smaller in at least one dimension than a linear dimension of the voxels, the apparatus comprising:

- (a) a scanner to scan the three-dimensional volume; and
- (b) a processor which includes

- (1) a contiguity identification module to determine a property of each of a plurality of voxels representing the three-dimensional volume and to identify voxels having similar values of said property to identify a contiguous group of voxels having said similar values using a contiguity evaluation process wherein, for a given voxel, voxels in the same plane as the given voxel, and in planes above and below the given voxel, are compared to said given voxel for contiguity; and

- (2) an identification module to identify said contiguous group of voxels as potentially containing said delamination in the composite material if a characteristic of said contiguous group has a predetermined value.

29. An apparatus to ascertain the presence of an object in a three-dimensional volume represented by a plurality of voxels, wherein the object is smaller in at least one dimension than a linear dimension of the voxels, the apparatus comprising:

- (a) a scanner to scan the three-dimensional volume; and
- (b) a processor which includes

- (1) a contiguity identification module to determine a property of each of a plurality of voxels representing the three-dimensional volume and to identify voxels having similar values of said property to identify a contiguous group of voxels having said similar values using a contiguity evaluation process

wherein, for a given voxel, voxels in the same plane as the given voxel, and in planes above and below the given voxel, are compared to said given voxel for contiguity; and

(2) an object identification module to identify said contiguous group of voxels as potentially containing said object if a characteristic of said contiguous group has a predetermined value, wherein said three-dimensional volume includes luggage contents.

9
30. A method to ascertain the presence of an explosive in a three-dimensional volume represented by a plurality of voxels, the method comprising the steps of:

(a) radiation scanning the three-dimensional volume to determine a property of each of a plurality of voxels representing the three-dimensional volume;

(b) identifying voxels having similar values of said property to identify a contiguous group of voxels having said similar values using a contiguity evaluation process wherein, for a given voxel, voxels in the same plane as the given voxel, and in planes above and below the given voxel, are compared to said given voxel for contiguity; and

(c) identifying said contiguous group of voxels as potentially containing said explosive based on a characteristic of said contiguous group.

10
31. An apparatus to ascertain the presence of an explosive in a three-dimensional volume represented by a plurality of voxels, the apparatus comprising:

(a) a scanner to scan the three-dimensional volume; and

(b) a processor which includes

(1) a contiguity identification module to determine a property of each of a plurality of voxels representing the three-dimensional volume and to identify voxels having similar values of said property to identify a contiguous group of voxels having said similar values using a contiguity evaluation process